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CLAIMS

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What is claimed is:

1. An Aqueous Film Forming Foam formulation comprising R_F-Q_s, wherein:
R_F has a greater affinity for a first part of a system having at least two parts than Q_s;
Q_s has a greater affinity for a second part of the system than R_F; and
R_F comprises at least two -CF₃ groups and at least two hydrogens.

- 2. The formulation of claim 1 wherein R_F is hydrophobic relative to Q_s.
- 3. The formulation of claim 1 wherein Q_s is hydrophilic relative to R_F.
- 4. The formulation of claim 1 wherein R_F is hydrophobic and Q_s is hydrophilic.
- 10 5. The formulation of claim 1 wherein R_F comprises at least one -CH₂- group.
 - 6. The formulation of claim 1 wherein R_F comprises at least one cyclic group.
 - 7. The formulation of claim 6 wherein the cyclic group comprises an aromatic group.
- 15 8. The formulation of claim 1 wherein R_F comprises at least one $(CF_3)_2CF$ -group.
 - 9. The formulation of claim 1 wherein R_F comprises at least three -CF₃ groups.
 - 10. The formulation of claim 1 wherein R_F comprises at least two $(CF_3)_2CF$ -groups.
- 20 11. The formulation of claim 1 wherein R_F comprises at least four carbons and one of the four carbons comprises a -CH₂- group.
 - 12. The formulation of claim 1 wherein R_F - Q_s is

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13. The formulation of claim 1 wherein R_F-Q_s is

14. The formulation of claim 1 wherein R_F - Q_s is R_F

15. The formulation of claim 1 wherein R_F - Q_s is R_F

16. The formulation of claim 1 wherein R_F-Q_s is ^{R_F}

17. The formulation of claim 1 wherein R_F-Q_s is R_F-Q_s is

18. The formulation of claim 1 wherein R_F - Q_s is R_F

19. The formulation of claim 1 wherein R_F - Q_s is F_3 C F

20. The formulation of claim 1 wherein R_F-Q_s is F₃C Q_s.

 F_3C F_3 F_4 G_4 G_5 G_5

21. The formulation of claim 1 wherein R_F-Q_s is

22. The formulation of claim 1 wherein R_F - Q_s is $F_3C - F_3 - F_5$

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- 23. The formulation of claim 1 wherein R_F-Q_s is _F
- 24. The formulation of claim 1 wherein R_F-Q_s is F
- 25. The formulation of claim 1 wherein R_F - Q_s is P_s Q_s P_s .
- F_3C F_3C F_3C F CF_3
- CF₃ Q₅ F√
- CF₃ Q₈

The formulation of claim 1 wherein R_F-Q_s is F_s

The formulation of claim 1 wherein R_F - Q_s is

- 28. The formulation of claim 1 wherein R_F - Q_s is F_3C CF_3 .
- 29. The formulation of claim 1 wherein $R_F\text{-}Q_s$ is $F_3C \underbrace{ \begin{array}{c} F_2 \\ F_2 \end{array} }_{C} \underbrace{ \begin{array}{c} F_2 \\ F_2 \end{array} }_{C} \underbrace{ \begin{array}{c} F_2 \\ F_2 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_3 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_3 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_2 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_2 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_3 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_3 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_2 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_2 \end{array} }_{C} \underbrace{ \begin{array}{c} C \\ F_3 \end{array} }_{C} \underbrace{ \begin{array}{c} C$
- 31. The formulation of claim 1 wherein R_F - Q_s is F_3C $F_$

32. The formulation of claim 1 wherein R_F-Q_s is

$$F_3C$$
 F_3C
 F
 CF_3
 CF_3

- 33. The formulation of claim 1 wherein R_F-Q_s is
- 34. The formulation of claim 1 wherein R_F-Q_s is

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- 35. A process for providing an Aqueous Film Forming Foam formulation to a substrate, the Aqueous Film Forming Foam formulation comprising R_F - Q_s , wherein: R_F has a greater affinity for a first part of a system having at least two parts than Q_s ; Q_s has a greater affinity for a second part of the system than R_F ; and R_F comprises at least two -CF₃ groups and at least two hydrogens.
 - 36. The process of claim 35 wherein R_F is hydrophobic relative to Q_s.
 - 37. The process of claim 35 wherein Q_s is hydrophilic relative to R_F.
 - 38. The process of claim 35 wherein R_F is hydrophobic and Q_s is hydrophilic.
 - 39. The process of claim 35 wherein the substrate comprises a liquid.
 - 40. The process of claim 35 wherein the substrate is a part of the system.
 - 41. The process of claim 35 wherein R_F comprises at least one -CH₂- group.
 - 42. The process of claim 35 wherein R_F comprises at least one cyclic group.
- 43. The process of claim 42 wherein the cyclic group comprises an aromatic group.
- 20 44. The process of claim 35 wherein R_F comprises at least one (CF₃)₂CF- group.

- 45. The process of claim 35 wherein R_F comprises at least three - CF_3 groups.
- 46. The process of claim 35 wherein R_F comprises at least two (CF₃)₂CF- groups.
- 47. The process of claim 35 wherein R_F comprises at least four carbons and one of the four carbons comprises a -CH₂- group.

5 48. The process of claim 35 wherein $R_{\text{F}}\text{-}Q_{\text{s}}$ is

49. The process of claim 35 wherein R_F - Q_s is R_F

50. The process of claim 35 wherein R_F - Q_s is R_F

51. The process of claim 35 wherein R_F-Q_s is ^{R_F}

52. The process of claim 35 wherein R_F - Q_S is

53. The process of claim 35 wherein R_F - Q_s is R_F .

54. The process of claim 35 wherein R_F - Q_s is R_F

55. The process of claim 35 wherein R_F - Q_s is F_3 0 .

56. The process of claim 35 wherein R_F - Q_s is F_3 C Q_s .

 F_3C F CF_3 CF_3 CF_3 C

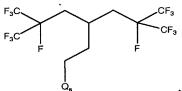
57. The process of claim 35 wherein R_F-Q_s is

 F_3C F_3 F_3C F_3 $F_$

58. The process of claim 35 wherein R_F-Q_s is

59. The process of claim 35 wherein R_F - Q_s is F

- 5 60. The process of claim 35 wherein R_F-Q_s is F
 - 61. The process of claim 35 wherein R_F - Q_s is $F_{g,Q}$ Q_s $F_{g,Q}$.



62. The process of claim 35 wherein R_F - Q_s is

63. The process of claim 35 wherein R_F - Q_s is F_3C

64. The process of claim 35 wherein R_F - Q_s is F_3 C CF_3

10 65. The process of claim 35 wherein R_F-Q_s is

66. The process of claim 35 wherein R_F-Q_s is

F₃C
$$\xrightarrow{F_2}$$
 $\xrightarrow{F_2}$ $\xrightarrow{F_2}$ $\xrightarrow{CF_3}$ $\xrightarrow{CF_3}$ $\xrightarrow{CF_3}$

67. The process of claim 35 wherein R_F - Q_s is F_{3C} F R_2

F₃C.

$$F_3C$$
 F CF_3

68. The process of claim 35 wherein R_F-Q_s is

69. The process of claim 35 wherein R_F-Q_s is

70. The process of claim 35 wherein $R_{\text{F}}\text{-}Q_{\text{s}}$ is $_{\text{F}_3\text{C}}$

- 71. A foam stabilizer comprising R_F - Q_{FS} , wherein R_F is hydrophobic relative to Q_{FS} , R_F comprising at least two -CF₃ groups and at least two hydrogens.
- 10 72. The stabilizer of claim 71 wherein R_F comprises at least one -CH₂- group.
 - 73. The stabilizer of claim 71 wherein R_F comprises at least one cyclic group.
 - 74. The stabilizer of claim 73 wherein the cyclic group comprises an aromatic group.
 - 75. The stabilizer of claim 71 wherein R_F comprises at least one (CF₃)₂CF- group.
- 15 76. The stabilizer of claim 71 wherein R_F comprises at least three -CF₃ groups.
 - 77. The stabilizer of claim 71 wherein R_F comprises at least two $(CF_3)_2CF$ -groups.

78. The stabilizer of claim 71 wherein R_F comprises at least four carbons and one of the four carbons comprises a -CH₂- group.

79. The stabilizer of claim 71 wherein R_{F} - Q_{FS} is

5 80. The stabilizer of claim 71 wherein R_F-Q_{FS} is

- 81. The stabilizer of claim 71 wherein R_F - Q_{FS} is F_3C
- 82. The stabilizer of claim 71 wherein R_F - Q_{FS} is F_3C
 - F_3C F CF_3 CF_3 CF_3 CF_3
- 83. The stabilizer of claim 71 wherein R_F-Q_{FS} is
- 10 84. The stabilizer of claim 71 wherein R_F-Q_{FS} is

- 85. The stabilizer of claim 71 wherein R_F-Q_{FS} is _F
- 86. The stabilizer of claim 71 wherein R_F-Q_{FS} is F
- 87. The stabilizer of claim 71 wherein R_F - Q_{FS} is F Q_{Fs} F

$$F_3C$$
 F_3C
 F
 CF_3
 CF_3

88. The stabilizer of claim 71 wherein R_{F} - Q_{FS} is

89. The stabilizer of claim 71 wherein R_F - Q_{FS} is F_s C

90. The stabilizer of claim 71 wherein R_F - Q_{FS} is F_3 C

92. The stabilizer of claim 71 wherein R_F - Q_{FS} is $F_3C - \sum_{F_2}^{F_2} \sum_{F_2}^{F_2} CF_3$

93. The stabilizer of claim 71 wherein R_F - Q_{FS} is F_3C F_3C

10 94. The stabilizer of claim 71 wherein R_F - Q_{FS} is F_3C

95. The stabilizer of claim 71 wherein R_F-Q_{FS} is

96. The stabilizer of claim 71 wherein R_F-Q_{FS} is

$$F_3C$$

$$F_3C$$

$$X, \text{ wherein X comprises a halogen.}$$